HOW THE BODY MAY BE INFLUENCED BY THE MIND IN SICKNESS AND HEALTH.

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YOU are probably aware, my friends, that the lecture I have the honour of giving to-night is one of a series delivered under the auspices of the Manchester and Salford Sanitary Association. This Association is composed of a number of gentlemen interested in the health of the great community around us. Now it is well known that many of those who die year by year, might have lived if they had been placed in circumstances more favourable to health, and that numbers of deaths take place from what are called, and truly called, preventable causes. This Association wishes to learn all that can be learned as to these preventable causes of death, and to use any knowledge that may be gained, in the way most likely to be for the benefit of our fellow-citizens. Various modes have been adopted. One way has been to bring under the notice of our corporate authorities any unhealthy conditions which it has been thought they might be able to remedy. And when we consider the great powers which corporations such as those of Manchester and Salford possess—how they control the supply of water—how they have charge of the drainage, and of the streets, and many other matters, such as the smoke nuisance and those arising from noxious manufactures—it is easy to see what serious responsibility rests on the gentlemen who are members of these corporations; and we must hope that these responsibilities are in some degree felt by our town councillors, and by those who drive about in blue and red cabs on election day.

Another mode of doing something to improve the health of the community, is to increase the knowledge of the people as to many things affecting health which they themselves only can carry out. Personal habits as to food, clothing, cleanliness, the care of children, and so on, have a vast influence on the health of a community, which is, of course, composed of an aggregate of individuals. The Sanitary Association has done, and is still doing, a good deal to diffuse such knowledge as this, by asking gentlemen to give lectures in various parts of the town on sanitary matters. These lectures are afterwards published at so cheap a rate that anyone can obtain them. Most of those already given have had reference chiefly to what may be called the external causes of disease—those which influence us from without—such as cold, our clothing, our food, our dwellings, &c.

This evening I venture to approach another topic—one which, perhaps, we scarcely think of as much as we should—viz., the influence which the mind has on the body; an influence so powerful and so constantly at work that it is clearly desirable that we should sometimes give it a share of our attention.

Though some of us may seldom give our thoughts to the matter, and may pass days and weeks without being conscious of the marvellous problems involved in our being, yet when we do think of ourselves and our compound nature even the most uninstructed must feel that we are "fearfully and wonderfully made."

We are familiar with our bodily framework. The young man rejoices in his activity and the strength of his muscles, while the old man, with stooping gait and weary limbs, creeps feebly homewards in the evening of his day.

But what is it that moves alike the feeble limbs of the aged and the eager buoyant step of the youth? Death may at any time lay a cold hand on the old man or the child, all movement may cease, and the materials of which our bodies are composed be given over to the changes which dead animal matter must undergo. But this is only what happens to all the animal world, and we feel that there is something more belonging to us than the mere animal life. It is not necessary for us to enter here into all the difficult questions that may arise as to what it is that makes man differ from the animals lower in the scale than himself. We need not try to prove the identity of the reasoning processes in the dog or the man, or to show how the instinct of the bee differs from the blundering efforts of the young child—how the one at its first essay builds its cell with the same marvellous mathematical accuracy as its

predecessors from unknown times—nor how the other, with painful and often unsuccessful effort, struggles on day by day, acquiring fresh powers, developing more skill, until at length the intellect of a Newton or a Shakspere shines forth, a beacon and a light to all who shall come after.

We need not detain you with any speculations as to this mystery of dead animal form, and of the same form imbued with life, nor of the beginnings of this life. We need not trace it from the minute speck of living jelly, only visible by the help of the highest powers of the microscope, through the lower forms of vegetable being up to the expanded blossom of the rose, or the noble form of the ancient oak, that has lived on, while one generation of man has succeeded another, through long centuries of storm and sunshine. Nor need we follow the endless gradations of the parallel series of animal life, with an infinite variety of form and structure, each telling of the power and wisdom of its Creator, till we arrive at the climax of His works—God's creature, man, with his hopes and fears, and his infinite longings and aspirations after something that his present life gives him not, but which he looks for in a life that is to be.

We may at once consider him as formed with two distinct yet inseparable portions of his being—*one* differing only from that of the other animals around him as one kind differeth from another, and *the other*, that which thinks and knows, which hopes and fears, which loves and hates, which wills that the limbs shall be active with energetic movement or shall rest in quiet repose, leaving the moving spirit, active the while, and perhaps working out in thought some of those schemes which have called into being all the wonders of intelligence we everywhere see around us. It is this unseen power which has covered the ocean with our steamers, and spread over the land the network of iron that almost does away with distance, and enables men from far-off regions to mingle freely and exchange thought for thought, and transact the mighty dealings of modern commerce. But illustrations of the powers of mind crowd on the brain in such an endless procession that it would be vain as well as useless to give what will occur to you all. We see in all this the power of mind over mind, as well as of mind over matter. But what shall we say of the power of mind over the body in which it dwells? It seems so simple: we *will* to move a limb, and we do it—and yet who can tell of the mechanism by which it is brought about? How is it that the thinking portion of ourselves—that which everyone

feels to be the real responsible man—that within him which i
his real self when he says, *I* will do it, or *I* will go, or *I* will suffer--
how is it that this embodied spirit has the power of subjecting th
body to its commands?

Most of you know enough of the human frame to be aware tha
it is composed of various organs, which minister to various use
in that most complex machine. You know that our food is mad
use of by the digestive organs, which so deal with it that i
becomes fit to be absorbed in a liquid form and carried into th
blood, so that nourishment may be supplied to the various part
of the body. You know how the blood is carried through th
blood-vessels by means of a great force-pump—the heart. Thi
organ is divided into four chambers, two on each side. From th
lower of these chambers on the left side the blood is driver
through vessels called arteries, into a mesh-work of fine tube
with thin walls, called capillaries. These fine tubes are place
between the arteries and veins, and the blood flows from thei
into the latter, which carry it back again to the heart, but thi
time into the chambers on its right side. This venous bloo
comes back dark coloured and charged with various matters take
up in its course through the capillaries, one of the most impo
tant of which is carbonic acid gas, which is dissolved in it, an
must be got rid of before it is fit to be sent on its course throug
the body again. In order to purify it, it is driven from the rig
side of the heart to the lungs, where the carbonic acid passes ou
with the breath, and the pure air is drawn in. The air we breath
contains oxygen, which is thus taken into the lungs, and is absorbe
into the blood, which then returns to the left side of the heart i
a state fit for distribution to the body once more. The object
our breathing is just this purification of the blood.

Now, presiding over and controlling all our movements and a
these processes is another great system—the nervous systen
This consists of what are called central organs, the brain an
spinal cord—the former placed in the skull, and the latter in
tube, most wonderfully contrived, which passes down through th
different bones that make up the spine or backbone. Passin
out through openings in the skull and the spine are variou
whitish cords called nerves, which are distributed all over th
body. These whitish cords are made up of an immense numb
of small threads, so minute that if they were spread out on a fl
surface it would take many thousands of the smallest of thei
lying side by side to occupy an inch in width.

The small threads visible to the naked eye are bundles of these minute fibres. Without going further into the structure of the nervous system we may say that the nerves ramifying through the body are the channels through which impressions are conveyed from the skin, from the eye, from the ear, &c.—from all the organs which connect us with the outer world—to the brain and spinal cord. They are also the channels through which the mandates of the will are conveyed from the brain to the muscles, and through which sometimes movements take place from the action of the spinal cord without the intervention of the brain. If we unexpectedly feel a sharp pain in the hand, as from the prick of a pin, there is a sudden withdrawal of it, which may take place without any conscious influence of the mind. In this case—as, indeed, happens in all other cases—the impression received by the skin of the finger was conveyed not directly to the muscles which drew the hand away, but to the nervous centre from which the mandate was sent by other nerves terminating in the muscles themselves and putting them in action. In the case of sneezing, likewise, you have a certain impression produced on the nerves of the nostrils conveyed to the nervous centre, and an influence sent down other nerves to various muscles which set them in action, thus producing the very complex set of movements taking place in those unaccustomed to the effect of snuff. Such movements as these, and many others, are called reflex, because they are reflected back without the mind or brain being called into conscious action. This influence of the spinal system is not only carried on without the mind being engaged, but sometimes even in opposition to the strongest efforts of our will.

Now the nerves which, as it were, carry the message from the surface of the body, or from an organ of the special senses, as the eye or the ear, to the spinal cord and the brain, are called *sensory* nerves, or nerves of sensation, while those which convey the commands of the will to the muscles and set them in action are called *motor* nerves.

Besides these sensory and motor nerves there are others, the so-called *sympathetic* nerves, which are chiefly distributed to the coats of the blood-vessels, and which by their action narrow these vessels so as to check to some extent the flow of blood through them. If the action of these nerves is paralysed the blood-vessels dilate, and more blood rushes through them. A very well-marked illustration of this is the "blush of shame," where the condition of the mind brings about an alteration in the size of the blood-

vessels of the face. The opposite condition of great pallor, where the same vessels are contracted, and less than the usual quantity of blood flows through them, is produced not unfrequently by fear. Sir Charles Bell gives the following description of the effects of *terror:* "There is," he says, "a spasm on his breast, he cannot breathe freely, the chest is elevated, the muscles of his neck and shoulders are in action, his breathing is short and rapid, there is a gasping and a convulsive motion of his lips, a tremor on his hollow cheek, a gulping and catching of his throat; and why does his heart knock at his ribs, while yet there is no force of circulation, for his lips and cheeks are ashy pale?" The influence which a state of nervous anticipation may have over the circulation is illustrated by an anecdote I heard recently of one of the greatest of our living singers. This gentleman—though the public would scarcely believe it—has never overcome a certain amount of nervousness before his public appearances; and not long ago, while waiting in the anteroom, a friend on taking him by the hands found them deadly cold.

It would take too long for us to consider *how* the mind acts on the body through the nervous system, which we may safely take for granted is the channel through which it *does* act. We of course do not know of mind without an accompanying body, and can scarcely conceive its separate existence. Every action of the mind is made manifest by some change or condition of body. We look attentively at another and try to read his thoughts, but mind has no language of its own, and can only make thought known by the action it exerts over our bodily organs. What is called the expression of the countenance is the state of the mind making itself known by the action of the muscles of the face. The expression is as varied as the character, and changeful as the changing thoughts. You see the play of features—now all smiles and sunshine, now all cloud and storm—in the rapidly succeeding and transient but vivid impressions of childhood; and you note how the habitual indulgence of one train of thought gives the features a fixed expression, which you come at length to associate with the individual. In this way we all come to be more or less judges of character. It is difficult to avoid making a mental estimate, so to speak, of those whom we meet with in daily life, and our likes and dislikes, our love at first sight, and sometimes, perhaps, hate at first sight, are produced in great part by the opinion we form of character from the expression of the countenance. We are thus constantly giving evidence of our belief in the great influence of mind over body.

And as the mind is thus constantly acting on the body, it does so in sickness as well as in health, and exercises a strong influence for good or for evil. Indeed, through the imagination—which term I use here in a very wide sense, as belonging both to the intellect and the emotions or feelings—the healthy are often reduced to what must be considered a state of sickness, while on the other hand the sick are restored to health. And through the prevailing habit of mind the ordinary conditions as to health may be materially affected. There is no doubt that a cheerful contented disposition and habit of mind will do much to maintain the health, while, on the contrary, a constant state of mental depression will tend to lower the physical condition.

The subject, however, is so wide that it can only be touched very lightly in such a lecture as the present; but enough may be said to show the value and importance of our attending somewhat to our own mental condition, and encouraging the habit of taking as cheerful and trustful a view of our state and prospects as we well can. Some people, you know, are always ready to be off and meet their troubles half way. If things look a little dark they despond—hope seems to be a word left out of their vocabulary—and so they are ill-fitted for the trials and struggles which make up a large part of every-day life. In sickness this hopeful or desponding condition of mind is often just that which turns the scale towards recovery or death.

The effect of fixing the attention on any part of the body has long been known. The subject of animal magnetism was talked of long ago, and nearly a hundred years since John Hunter, the great surgeon and physiologist, says, "I was asked to go to be magnetized, but at first refused, because the spasm on my vital parts was very likely to be brought on by a state of mind anxious about any event, and I feared lest it should be imputed to animal magnetism. But considering that if any person was affected by it, *it must be by the imagination being worked up by the attention to the part expected to be affected*, and thinking I could counteract this, I went. . . . When the magnetizer began his operations, and informed me that I should feel it first at the root of my nails of that hand nearest the apparatus, *I fixed my attention on my great toe*, where I was wishing to have a fit of the gout; *and I am confident that I can fix my attention to any part until I have a sensation in that part.* Whenever I found myself attending to his tricks I fell to work with my great toe, working it about, &c., by which means I prevented it having any effect upon me."

In my student days I once went to a lecture in London on electro-biology—the same subject under another name; and being where I thought no one knew me I responded to the invitation of the lecturer, and ascended the platform, with perhaps a dozen or twenty people from the audience. The lecturer put a piece of zinc and copper into the left hand of each, as we were seated in chairs with our backs to the people. Several of those who went up were brought, apparently in response to the passes of the lecturer, into what is called the mesmeric state, and made to perform all sorts of curious antics. Some others, however, were not, and being of no use to the lecturer were sent down again to their places. I, being perhaps somewhat sceptical as to the genuineness of the exhibition, was one of these, although I conformed to all the directions given. Those who passed into the mesmeric state gave themselves up to the influence of the imagination and of expectant attention. And though in connection with this subject there has been an immense amount of fraud and imposition, there is no doubt of the reality in many cases of the mesmeric sleep. The late Mr. Braid, a surgeon in Manchester, more than thirty years ago, produced very remarkable results by a process the principle of which was to induce the patient to concentrate the attention most intensely "on one object, not of an exciting nature." He certainly brought about the cure of bodily ailments while the patients were in this condition, which we do not ordinarily find influenced to any great degree by the mental state. He made no pretensions to the possession of any special power over the patient, but considered that his method owed its success "to an impression made on the nervous centres by the physical and psychical (or mental) condition of the patient, irrespective of any agency proceeding from or excited by another."

The effect of the imagination in inducing diseases, or a close resemblance of them, is well known, and numberless instances might be mentioned. It is a common observation that medical students are very apt, in consequence of their studies, to believe themselves the subjects of all kinds of serious ailments. Heart disease in its various forms is one of these. They read of it, and get the various symptoms fixed in their minds; they also see cases of it in the hospitals in its different stages and varieties. Their attention is turned to the action of their own hearts, and when this happens some little increase in the frequency and force of the beats is sure to take place; they feel palpitation, and think the heart must be enlarged or dilated, and so bring about a most uncom-

fortable state of mind, with perhaps some little functional disturbance of the organ. This is purely the result of the attention being fixed on the subject, and shows how undesirable it is to dwell on our own sensations, or to try to picture to ourselves the condition of our internal organs. But the effect produced on the heart by attention is much less marked than that of violent feeling or emotion. Most people have felt the bound it may give from sudden fright. Sudden joy may in a similar way produce much the same effect, and if the emotion be of sufficient intensity death may actually take place from spasm of its muscular walls. Fainting, which is apt to occur in some people from what seem to be slight causes, and even in those not usually subject to it, from more powerful influences, is due to feeble action, and sometimes to temporary cessation, of the heart's action.

Where it is healthy it soon resumes its ordinary action, but if it is in a diseased or feeble condition the shock may be too great, and it may throb no more. John Hunter, the great man I mentioned a while ago, died in this way. He was subject to spasm of the heart brought on by anxiety or emotion, and though gifted with the highest intellectual powers had not gained the control of the passions and emotions so necessary to carry us safely through trial and excitement. "My life," he once said, "is at the mercy of any scoundrel who chooses to put me in a passion." He was greatly interested in a question which was to come before the Board of St. George's Hospital, of which he was surgeon, and feared lest some dispute might arise, expressing his conviction to a friend before the meeting that if it did it would kill him. At the meeting he presented a memorial, and was speaking in support of it, when "one of his colleagues thought it necessary instantly and flatly to contradict" him. "Hunter immediately ceased speaking, retired from the table, and struggling to suppress the tumult of his passion, hurried into the adjoining room," and fell lifeless into the arms of one of the physicians. But his heart was, as expected, found to be extensively diseased.

In these days life is carried on at a great strain, under great pressure, and this tells its tale in the increasing frequency of diseases of the heart. Dr. Quain, writing in 1872, says that "the deaths of males, at all ages, from heart disease have increased in number from 5,746 in 1851 to 12,428 in 1870;" and that this increase "has taken place wholly in connection with the working years of active social life." There is no increase in those under 25, but that it has chiefly risen between those of 20 and 45. He

says, moreover, that it is almost exclusively in males, for there is scarcely any increase in the percentage of females dying of heart disease between those ages.

Passing from this grave aspect of the effect of mental conditions on the heart, we may give one or two illustrations of its effect on the blood-vessels. Sometimes cases occur where the surface of the brain is exposed through accident, and yet the patient lives; and one is recorded where a large portion of the skull was thus lost. The patient, a strong young man, when excited by pain, fear, or anger, had tumultuous throbbing of the brain, which swelled up and protruded greatly, so as sometimes to disturb the dressings, which had to be applied loosely. Actual rupture of the vessels of the brain and death from apoplexy have frequently taken place from sudden emotion, as anger, or even joy. A woman at Preston, about ten or twelve years ago, was waiting at the station in the greatest anxiety as to the safety of her daughter, who was in a train which had been in a serious collision, and many of the passengers were injured. The rumours she heard greatly alarmed the mother, but her daughter soon arrived and had escaped all injury. But joy was here more fatal than grief, for she clasped her daughter in her arms, fell down in a fit, and died in twelve hours. In a similar way, bleeding has taken place from the lungs, as the result of sudden emotion, as fright; and Broussais gives the case of "a lady who, on finding a living frog fall into her bosom from the claws of a bird of prey, while she was sitting on the grass, was instantly seized with such a profuse bleeding from the lungs that she survived but a few minutes."

The effects of fear in producing a feeling of chilliness, and the state of the skin popularly called goose-flesh, are well known. There is no doubt but that the health may be materially influenced by the emotions, from the great effect they may produce on the functions of many of the internal organs. We have seen how emotions may affect the circulation in the minute vessels of the face, causing in one case a blush to spread over the features, while in another the cheek is blanched with a death-like pallor. There is good reason to believe that the circulation through the internal organs may be affected in a similar way, and so various alterations as to nutrition and secretion may occur. Thus, Dr. Wilks, a well-known physician in London, says, "We hear sometimes of fear turning the whole mass of the blood. I believe this is literally correct. I have seen now so many cases of *anæmia*"—by which he means a state marked by extreme paleness, and a thin, watery con-

dition of the blood—"some of them fatal, occurring upon a severe shock of the nervous system, that I have no doubt of the fact."

Dr. Tuke mentions a case which occurred in the late war between France and Germany. He says, "A lady informs me that at Tours many lost their health, and some died from fright. A young lady was standing with her father at the window when the Prussian soldiers came down the *tranchée*, and was seized with shivering. Her father, who could feel her trembling, said, 'You need not be frightened—they will not hurt you;' but she had received a shock from which she became quite blanched, and lost her sleep and flesh." Some time afterwards she had not fully recovered her strength. The same writer quotes from a letter by Dr. Boggs to the *Lancet*, in 1871, as follows: "The only hope of the Parisians, which they fondly cherished, and which, in a great measure, kept them alive during the siege, was most cruelly blighted, and you may imagine their disappointment when the capitulation of the city was announced—the mental shock to some was such that they almost lost their reason. . . . . But the most remarkable effect of the siege was the aged appearance of some of the inhabitants; men and women alike seem to have passed over at least ten years of their existence in at least half as many months. A friend of mine, a distinguished practitioner, . . . nearly fifty years of age, has become so grey and wrinkled, and such other changes have taken place in his constitution, as to give him the appearance of a man of sixty."

The influence of emotion on the hair is popularly known. Byron refers to this when he says, in "The Prisoner of Chillon,"

> "Nor grew it white in a single night
> As men's have grown from sudden fears."

Many well authenticated cases of this are on record. Dr. Tuke says that he knew "of a captain of a vessel, under forty years of age, who suffered shipwreck twice. On the first occasion (in which he lost all hope) his hair quickly turned grey; and on the second, some considerable time afterwards, his hair became still further blanched."

The influence of the emotions on the appetite and on the digestive organs is known more or less to almost every one. Most people are aware how bad news or anxiety will take away the appetite. And there is no doubt that jaundice is sometimes caused in the same way.

The effect of passion or violent anger on the quality and properties of human milk is such that—instead of its being the bland

digestible food so wonderfully fitted to supply all the elements the body requires in infancy, as it is when the mother is healthy—it may become a deadly poison. Many a fit of convulsions has been brought on, many a case of serious disorder of the digestive organs, and even many a death, by the mother nursing her child after she herself has been indulging in a fit of excitement and passion. There is also abundant evidence to show that the mind has great influence in protecting people, or rendering them more liable to suffer from contagious diseases. This is true as to fever, and even smallpox. Sir Samuel Baker (quoted by Dr. Tuke), after describing a fever which frequently proved fatal in Africa, and was of an intermittent type, like the ague that used to be so prevalent in the fen districts of this country, says that "any severe action of the mind, such as grief or anger, is almost certain to be followed by fever," and that full occupation for the mind was found to ward it off. It is said that "the Duke of Norfolk, when suspected by Queen Elizabeth of conspiracy, and anxious to clear himself in her presence, found his heart fail him, *and fell into an ague, and was fain to get him to bed without his dinner.*"

Many diseases—rheumatism and gout among the number—may be brought on by mental influences, and even cured in the same way. Dr. Tuke mentions two cases which he knew where rheumatism was caused by fright. One was that of a woman, then in good health, who heard that her husband, at work in a town at some distance, had had a severe accident, when, after the shock she had received, her wrists and ankles became swollen and painful. The other was that of a boy, who had been greatly alarmed by a drunken man, and reached home pale and suffering from nervous shock. He became feverish, and several of the joints became painful and swollen. As to gout, Dr. Badely says, "A friend of mine had a fit of gout brought on by fretting, and was cured suddenly by the alarm of a house being on fire."

Sydenham, a well-known physician, who died in 1869, was a martyr to gout, and he says, speaking of its causes, "Melancholy, so called, is pre-eminently the inseparable companion of gout. Hence those who are liable to it are so wont to tire and overwhelm the animal spirits by long and deep thought, that excessive exertion of this sort, even without the artificial aid of reading, makes the proper preservation of the economy of the body an impossibility, for which reason (as seems to me) gout rarely attacks fools." Then he says, "Those who choose may except the present writer."

It is not, of course, intended that you should suppose that mental causes are the only ones concerned in the production of these or other diseases.

There is one terrible disease of the nervous system, hydrophobia, which may be simulated, and even death may take place, without the true disease existing at all, but simply as the result of fear; and, on the other hand, cases of this kind have occurred where recovery has taken place on the patient being convinced that his fears were groundless. Many such cases are on record. "The Memoirs of the Royal Society of Sciences of Montpellier contain a history of two brothers bitten by a mad dog, one of whom went to Holland, and did not return for ten years. Learning on his arrival that his brother had died from hydrophobia, he was seized with hydrophobic symptoms, and died." Now it is in the highest degree improbable that the virus or poison had been dormant in the system for so long a period, and was then roused into activity. In all likelihood there was no virus introduced into the bite in the first instance, but if there were, that it would not preserve its powers for so long a time. Then, too, it must be remembered that in reality only a small proportion of those bitten by dogs truly mad, ever suffer from hydrophobia. The disease is communicated by the saliva of the dog being introduced into the wound, and when anyone is bitten through the clothing, especially if it be woollen or of pretty close texture, the teeth are wiped so thoroughly that none of it gets into the wound. And even when the bite is inflicted on the exposed skin, the chances of escape are very great if the blood flows freely, so as to carry away the poison, and as it were to wash out the wound.

Trousseau, a distinguished French physician, has related several cases of this imaginary hydrophobia. In one, a gentleman was out riding, accompanied by his dog, when they met a flock of sheep, many of which the dog bit. It then swam across a river, and in a few hours it died. This gentleman afterwards heard that many of the sheep had died of rabies; and he became alarmed, for he remembered that his dog had on the same day licked his hand several times, and he found some scars on it. He was seized with terror, durst not touch water, nor attempt to shave himself, and fully believed he had hydrophobia. For several days he was excited and delirious, and nothing would calm his fears. But, at last, after being repeatedly told that people suffering from hydrophobia died very soon — while he had already been ill for ten days—he was persuaded that his fears

were groundless, and his dread of water disappeared. So powerful is the effect of the imagination in the production of hydrophobia that some medical men have believed that it is always the result of fear. This, no doubt, is going too far, but it is well to bear in mind the facts I have mentioned, and not allow terror to obtain the mastery over reason, when there is a suspicion that a dog who has bitten anyone may have been mad. It is difficult, no doubt, for the mind to retain its calmness in such a case, and to avoid conjuring up fears of the dread consequences that may follow. Nor is it easy to suggest means to aid the unhappy man, who carries with him the fear that an awful fate is impending over him in the dark future. Where there is proof that the dog was really mad, all this applies with the greater force; but where this most material fact is not proved, something perhaps may be done. It would be the greatest consolation to the bitten person if he knew that the dog remained in good health, but in most cases this is denied him, because—mad or not mad—the dog is killed. If, however, instead of being killed, it could be kept in security unknown to the patient, its condition could be ascertained. If mad, it would soon die. If not mad, it would remain in health, and this would be an absolute cure for all the morbid dread and nervous apprehension that are enough to kill, and no doubt often do kill, the patient.

Passing from this painful and, I must say, unsatisfactory subject of hydrophobia—for it must be unsatisfactory so long as our ignorance concerning it is so great—I should like to say a few words on the effect of sympathy and imitation, especially where numbers of people are assembled together. This bond of union among men is found in all countries and climes. It is as strongly manifested in civilised as in barbarous communities, and at various times has produced most extraordinary effects. A well marked case of this character occurred in Lancashire in 1787. A girl in a cotton factory at Hebden Bridge put a mouse into the bosom of another girl who had a great dread of mice. This was on the 15th of February. "The girl was immediately thrown into a fit, and continued in it with the most violent convulsions for twenty-four hours. On the following day three more girls were seized in the same manner, and on the 17th six more. By this time the alarm was so general that the whole works, in which 200 or 300 were employed, were totally stopped, and an idea prevailed that a particular disease had been introduced by a bag of cotton opened in the house. On Sunday, the 18th, Dr. St. Clare was

sent for from Preston. Before he arrived three more were seized; and during that night and the morning of the 19th eleven more, making in all twenty-four. Of these, twenty-one were young women, two were girls of about ten years of age, and one was a man, who had been very much fatigued with holding the girls. Three of the number lived about two miles from the place where the disorder first broke out, and three at another factory at Clitheroe, about five miles distant, which last and two more were infected entirely from report, not having seen the other patients, but, like them and the rest of the country, strongly impressed with the idea of the plague being caught from the cotton. The symptoms were anxiety, strangulation, and very strong convulsions; and these were so violent as to last without any intermission from a quarter of an hour to twenty-four hours, and to require four or five persons to prevent the patients from tearing their hair and dashing their heads against the floor or walls. Dr. St. Clare had taken with him a portable electrical machine, and by electric shocks the patients were universally relieved without exception. As soon as the patients and the country were assured that the complaint was merely nervous, easily cured, and not introduced by the cotton, no fresh person was affected." The account which I have just quoted is given in Hecker's "Epidemics of the Middle Ages," and is taken from the *Gentleman's Magazine* of 1787. Here we see that there was no predisposing cause affecting the whole of those seized, except that they were probably in feeble health from confinement in a close unhealthy atmosphere, for we must remember that the condition of the cotton operatives has greatly improved in many respects during the last ninety years. The hours of labour were, I believe, much longer then than now, and the old mills were worse ventilated and more unhealthy than the modern ones. Where people lead lives opposed to Nature's laws—as where women are strictly secluded in orphan asylums, hospitals, and convents, and debarred from social enjoyment and family affection—their imaginations are apt to become morbidly excitable, and their thoughts are turned too much in upon themselves. In such cases, if one becomes affected with a nervous disorder, it is apt to run through the whole. Zimmermann, in his work on "Solitude," gives a curious and amusing account of one of these manifestations of what is called the hysterical condition. He says: "I have read in a good medical work that a nun, in a large convent in France, began to mew like a cat; shortly afterwards

other nuns also mewed. At last all the nuns mewed together every day, at a certain time, for several hours together. The whole surrounding Christian neighbourhood heard with equal chagrin and astonishment this daily cat concert, which did not cease till all the nuns were informed that a company of soldiers were placed by the police before the entrance of the convent, and that they were provided with rods, and would continue whipping them until they promised not to mew any more." He then mentions an epidemic of the fifteenth century: "A nun in a German nunnery fell to biting all her companions. In the course of a short time all the nuns of this convent began biting each other. The news of this infatuation soon spread, and it now passed from convent to convent throughout a great part of Germany, principally Saxony and Brandenburg. It afterwards visited the nunneries of Holland, and at last the nuns had the biting mania even as far as Rome."

The fourteenth and fifteenth centuries were remarkable for destructive epidemics. Hecker says: "Every country in Europe, and Italy, perhaps, more than any other, was visited during the Middle Ages by frightful plagues, which followed each other in such quick succession that they gave the exhausted people scarcely any time for recovery. The *Oriental Plague* ravaged Italy sixteen times between the years 1119 and 1340. Smallpox and measles were still more destructive than in modern times, and recurred as frequently. *St. Anthony's Fire* was the dread of town and country; and that disgusting disease, the *Leprosy*, which, in consequence of the Crusades, spread its insinuating poison in all directions, snatched from the parental hearth innumerable victims who, banished from human society, pined away in lonely huts whither they were accompanied only by the pity of the benevolent and their own despair. All these calamities . . . were heightened to an incredible degree by the *Black Death*, which spread boundless devastation and misery over Italy. Men's minds were everywhere morbidly sensitive; and as it happens with individuals whose senses, when they are suffering under anxiety, become more irritable, so that trifles are magnified into objects of great alarm, and slight shocks which would scarcely affect the spirits when in health give rise in them to severe diseases—so was it with this whole nation, at all times so alive to emotions, and at that period so pressed with the horrors of death." At this period there arose a most remarkable form of nervous disorder, called the *Dancing Mania*, which was excited by

the bite of a venomous spider, or some insect, or rather by the unreasonable fear of its consequences, and no doubt was heightened immensely by the morbid mental condition so general at that period. This disorder received the name of *Tarantism*, from the *tarantula*, or venomous spider, which was the object of so much dread. "Nothing short of death was expected from the wound which these insects inflicted; and if those who were bitten escaped with their lives they were said to be pining away in a desponding state of lassitude." The only thing which had the power of rousing them from this condition was music. At the sound of the flute or the cithern "they awoke as it were by enchantment, opened their eyes, and moving slowly at first, according to the measure of the music, were, as the time quickened, gradually hurried on to the most passionate dance." Rude country people, "ignorant of music, evinced on these occasions an unusual degree of grace, as if they had been well practised in elegant movements of the body; for it is a peculiarity in nervous disorders of this kind that the organs of motion are in an altered condition, and are completely under the control of the overstrained spirits. Cities and villages alike resounded throughout the summer season with the notes of fifes, clarionets, and Turkish drums; and patients were everywhere to be met with who looked to dancing as their only remedy." Alexander ab Alexandro, who gives this account, saw a young man who had a violent attack of tarantism: "He listened with eagerness and a fixed stare to the sound of a drum, and his graceful movements gradually became more and more violent until his dancing was converted into a succession of frantic leaps. . . . In the midst of this overstrained exertion of mind and body the music suddenly ceased, and he immediately fell powerless to the ground, where he lay senseless and motionless until its magical effect again aroused him to a renewal of his impassioned performances." These poor creatures believed "that by music and dancing the poison of the tarantula was distributed over the whole body and expelled through the skin, but that if there remained the slightest vestige of it in the vessels this became a permanent germ of the disorder, so that the dancing fits might again and again be excited *ad infinitum* by music." The number of those affected by it increased beyond all belief, for whoever had either actually been, or even fancied that he had been, once bitten by a poisonous spider or scorpion, made his appearance annually whenever the merry notes of the "Tarantella" resounded; for music was expressly composed for the purpose of this dancing,

and some of it is preserved even to this day. Females joined the throng and caught the disease, "not, indeed, from the poison of the spider, but from the mental poison which they eagerly received through the eye; and thus the cure of the tarantati gradually became established as a regular festival of the populace, which was anticipated with impatient delight." I need not dwell longer on this extraordinary state of things, nor on the dire consequences to individuals and the community which were too often its results. It frequently developed into actual insanity, and mingled with it was, of course, an immense amount of fraud and imposition. Two curious features, however, were the strong likes and dislikes to certain colours, and an insane longing for the sea, into which many recklessly cast themselves. In these days it seems scarcely credible that such wide-spread mental disorder could have existed at any period. And yet even in our own times mental excitement in some of the so-called religious revivals has produced convulsive or hysterical disorders more or less resembling it. I have no wish to speak with any want of respect of these revivals, but to note the fact that in a large number of cases there was marked physical and mental disorder. Dr. Cuthbert, of Londonderry, a witness of the Ulster revival cases of 1859, believed that "in a large number of cases the physical symptoms were but the natural expression of mental impressions!" and says, "I still consider that the symptoms in a large number of cases were not those of hysteria." But in the same letter to Dr. Tuke, from which this is a quotation, he adds, "The good effects, I think, were in inverse proportion to the physical manifestations."

It would occupy too much time to dwell much longer on these and other kindred manifestations, and I will only mention one more nervous disorder belonging to this category, namely, *St. Vitus's Dance*, or *Chorea*, as it is also called. This disease is probably known to many of you, and chiefly as affecting the young. It may, however, occur late in life. It often arises from other causes than mental ones; but there is no doubt that it is frequently excited by fright, sudden terror, and anxiety, especially in children whose parents are of a nervous temperament. For instance, if the mother is hysterical her child is more likely to suffer from St. Vitus's Dance than other children. And the practical point to bear in mind is that parents should endeavour to protect their children from all such influences. The silly and wicked manner in which the easily aroused fears of young children are sometimes acted, on by thoughtless and cruel nurses and young people,

cannot be held in too great abhorrence, nor be too promptly checked, for impressions are readily stamped on the minds of young children, and their early years made miserable, by things that a few years later would leave them unscathed.

And here, though they have been mentioned before, I may again impress on you the great effects which fear, anger, and some other of the passions or emotions have on the heart, as well as on the nervous system. On the former sudden fear has often been known to cause permanent irregularity or intermittency of its action. It should perform its function, that of receiving the blood from the great veins of the system and the lungs, and of pumping it into the arteries of the body and lungs, so as to keep up its constant movement through the blood-vessels, in such a way that we are not conscious in ordinary circumstances of its existence. But where this intermission of its beat occurs, there is often a most uncomfortable sensation of a stoppage taking place for a moment, and then, with a kind of throb or bound, the heart resumes its action as before. This intermission may occur once in a minute, or several times; then, too, its beats may be irregular in force as well as in rhythm.

Dr. Richardson, in his "Diseases of Modern Life," gives an instance of a gentleman returning from a long voyage in perfect health and spirits, when his ship came into collision with another, and was sinking rapidly. "With the sensation of the sinking of the ship, and the obvious imminence of death—five minutes was the longest expected period of remaining life—this gentleman felt his heart, previously acting vehemently, stop in its beat." Then there was "a confused period of noise, and cries, and rush, and a return to comparative quiet," during which he was conveyed, almost unconsciously, from the sinking vessel to another that had come to the rescue. When sufficiently calm he could count the intermissions. They occurred four or five times in the minute for several days, and interfered with his going to sleep for several nights. Some improvement took place, but not recovery, and a less degree of the disordered action remained permanent. The same graphic writer gives an account of the effect of fear on the nervous system, which might be corroborated by the experience of most medical men. A man, afterwards placed in an asylum, owing to fixed delusions that his friends were conspiring to kill him, explained to Dr. Richardson, "before his delusion was established, from what it started. When he was a boy he had a nervous dread of water, and his father, for that very reason, and with the

best of intentions, determined that he should be taught to swim. He was taken by his tutor to the side of the river, and when he was undressed he suddenly found himself cast by his instructor, without any warning, into the stream. . . . The immediate effect, beginning with the faintness of fear, was followed by vomiting, by a long train of other nervous symptoms, by constant dread that some one was in some way about to repeat the infliction, by frequent dreaming of the event by night, by thinking upon it in the day." At last he became dangerously insane. A case is recorded of an infant lying happy in its cradle, when a cock perched itself on the side of it. At first the child seemed amused, then, as the bird looked at it, a little alarmed, and when it crowed loudly the child screamed, and all its after-life became a blank, for though it lived on it was as a hopeless idiot.

The effect of anger is very similar to that from fear, and perhaps even more destructive to the vital powers. Sometimes the face is flushed and hot, and we say the man is red with passion. Sometimes it is pallid, and the man seems for a while almost paralysed; his tongue can find no words to utter, his limbs seem powerless, and he may be faint and sinking from partial stoppage of the heart's action. These violent tumults of the soul tell most disastrously on even the strongest, and sometimes death itself is the penalty of ungoverned passion. It may take place while the man is "white with rage," and the failing heart is unable to supply the brain with the blood required for its functions. Then we say he has died of faintness during excitement. But if he lives through this stage a reaction comes—the vessels dilate, the heart resumes its work, but it beats with wild tumultuous stroke, and the vessels of the brain may become engorged, one may give way, and blood be poured out into the substance of the brain, and we say that the man has died of apoplexy. Every fit of anger and every state of fear are not followed by such tragic results as these, but every mental storm leaves traces of more or less damage in its track.

Hatred and grief, in their turn, may wound both heart and brain. The latter, if severe and prolonged, may alter the whole character of a life. Its depressing influence may produce a feebleness both of mind and body, so that instead of the cheerful performance of work and duty there is a shrinking from effort, either mental or bodily—a wish for seclusion, a sense of the emptiness of life, and a longing of the weary soul for rest.

So, too, the excitement and suspense of the gambler, who stakes

is money—or, perhaps, not his, but that of another, it may be is master's, or his ward's, or his friends—on the cast of the dice, r the turning up of a card, or on the winning or losing of a race y a horse of which he probably knows nothing but the name, are ubjecting his heart and brain to tests, the severity of which they ay not be able to bear without grievous immediate damage, and om which they are sure to suffer in the not distant future. And hat shall be said of the mental and physical strain under which o much of the speculative business of modern times is carried n? How does it differ from that which the gambler undergoes? he feverish haste to be rich, leading to transactions larger than are arranted by the capital employed, and these in their turn throwing ack on the man the burden of sleepless nights and anxious days, so hat his whole soul is immersed in care, brings about an irritable, xcitable condition of mind and body that will shorten his life—and hat surely no gain can repay. He is perhaps aiming at a golden ture of rest for himself, and easy security for his children, who re most likely being brought up in habits of self-indulgent luxury, hich they are ill fitted to exchange for the penury that a commercial crisis may too suddenly bring upon them. To the poor truggler after the rest which never comes this blind folly seems isdom. But even if spared the ruin and disaster which are so ommon as to make us almost forget the blasted hopes, the lighted future, the misery and grief which from just such causes ow darken so many homes—if spared all these, what is such a an's life worth? When the time for rest comes, and the days nd nights of work have gone, his wearied brain and feeble heart ell him that his power of enjoying life, after the fashion he looked r, has gone likewise. He is left an irritable invalid, whose ays drag on without interest and zest, and whose nights are spent n looking for the morning; or his old habits are so strong that ack he must go to his desk or his store, to be a hindrance and nnoyance to his younger and more vigorous successors, who may e following with like infatuation this phantom of success.

This may seem a highly coloured picture of commercial life, and et it is too common. The old paths of steady industry, content ith moderation, without great aspirations after wealth, or heart-urning struggles after social position just beyond that which they re ever able to reach, are too often forsaken. All this is too often eemed old-fashioned and slow. And yet, if we could only believe t, the happiness of life consists not in the abundance we possess, ut rather in the feeling of thankfulness and contentment which

enable us to enjoy such things as we have. Men seem to think their happiness is far off in the future, and so lose the enjoyment of the present. The striving after position, the jealousy lest neighbours should have better houses or finer carriages than themselves, the social display which characterises our times perhaps almost more than others, all tend to keep up the struggle for wealth which is sure to bring anxiety rather than pleasure as a result. With less luxury there would be more comfort as well as diminished cost; and that difficult process of making both ends meet would be all the easier. It is the worry and anxiety of life that kill. Mental work, either in literature, in science, or in commerce, does no harm if there is freedom from the wearing influence of anxiety.

And now, my friends, though you have been detained too long, I have touched, but that more lightly than the subject deserves, on a few only of the modes in which mental influences tell on health. One or two simple lessons seem to be suggested. Moderation in all things is the best for our physical well-being, and for our mental happiness. Contentment and cheerfulness, with the disposition to make the best of our circumstances, yield more satisfaction than the indulgence of ambition, whose thirst is never satisfied. People are too often striving to reach some Elysian fields of perpetual verdure, which, like the mirage, dazzle and deceive the weary traveller, while they overlook the wayside flowers scattered around to cheer and brighten the road on which they journey. The control of the passions—so that they may be kept under the subjection of the reason and the will—is one of the surest means for preserving a sound mind in a sound body. This should be the object of parents and teachers with children of the earliest age. And the cultivation of a cheerful, hopeful habit of mind, will do much to render the troubles and chances of this mortal life more bearable, and to increase our happiness. How many homes are made miserable by the habit of indulging a querulous temper and a sharp tongue? Cheerfulness and good temper should be carefully cultivated even under difficulties, for they do much to render our lives healthy as well as happy. Reason, and the power of will, may aid in this cultivation, but much help may be given by a faith and trust, concerning which it is not in my province to speak. I can leave these questions, however, in the full confidence that you will receive wise counsel from your good friend the rector, who has so kindly acted as our chairman.